

(12) United States Patent Honda et al.

(54) **SEMICONDUCTOR DEVICE**

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ABSTRACT

The concentration of impurity elements included in an oxide semiconductor film in the vicinity of a gate insulating film is reduced. Further, crystallinity of the oxide semiconductor film in the vicinity of the gate insulating film is improved. A semiconductor device includes an oxide semiconductor film over a substrate, a source electrode and a drain electrode over the oxide semiconductor film, a gate insulating film which includes an oxide containing silicon and is formed (Continued)

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